

# Lewis and Clark County Flood Mitigation

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## Trap Club Project

- Focuses on the Rossiter School area as the primary public infrastructure affected, and moving surface flood waters more efficiently through the area.
- Ongoing since 2012.
- A hydrologic and hydraulic study commissioned in 2015 uses cutting edge technology to accurately model the valley and assess the effects of different types of floods as well as the effects of flood mitigation efforts.
- The study revealed the Trap Club Project as planned wouldn't achieve the goal of the project so the plan was changed. The change added the replacement of culverts and regrading of the ditch along the south side of Sierra Road between North Montana and Interstate 15.
- Presently, construction is underway with an anticipated completion date of December 26, 2019.
- This project will cost approximately \$2.4M.



## FEMA Flood Mitigation Assistance Grant

- Awarded in September 2018, the grant will be used to update the Helena Valley Flood Mitigation Master Plan (HVFMMMP).
- Will serve as a roadmap for future projects, allowing the County to plan and budget accordingly.
- The total amount of the Mitigation Assistance grant and County match is \$54,050.

## Rural Improvement District

- In July 2017, the Board of County Commissioners adopted a resolution to create a Rural Improvement District for flood mitigation in the valley.
- The RID currently encompasses 1,578 parcels and has an assessment of \$100/year.
- RID funds must be spent within the district boundary.
- The RID funding will generally be used to provide matching funds for state and federal grants for projects outlined in the 2013 HVFMMMP and subsequent FEMA Grant amendment to the HVFMMMP.
- If grant applications are not successful, projects will be funded within the limited capacity of the RID.



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**Lewis and Clark County Engineer:**

Dan Karlin  
3402 Cooney Dr.  
Helena, MT 59602  
406.447.8034  
dkarlin@lccountymt.gov



## Frequently Asked Questions

### Why doesn't the County dredge Ten Mile Creek?

Keeping the stream free of debris (trash, tree branches, etc.) that accumulates around bridges and culverts increase flow capacity, reduce flood impacts, and is generally a good maintenance practice. However, extensive channel dredging with the purpose of lowering the bed elevation over extended lengths of creek is not a sound management practice. The increase in channel capacity is typically short-lived as silt, sand, gravel and rock is transported into the reach and fills the dredged area as flood waters go down.

### Why does the County not put in rip rap or retaining walls to stop the water from leaving the creek bed?

Constructing levees above the natural streambank to allow more water in the channel is not a viable, long-term solution for flood protection. Because Tenmile Creek is on an alluvial fan (learn about alluvial fans in next question), the floodplain is poorly defined and lacks effective flood carrying capacity. Putting levees along significant portions of the channel would only make flood impacts worse by further raising the channel in relation to the surrounding land. Flow capacity at bridges and culverts could also be reduced because of potential long-term raises in bed elevation.

### What is an alluvial fan?

An **alluvial fan** is a fan-shaped deposit of gravel, sand, and silt. An alluvial fan occurs where a fast-moving mountain stream empties out onto a relatively flat plain. When this happens, sediment that was being carried by the stream deposits itself in the stream channel as the water velocity slows. This causes a build-up of alluvial (stream-transported) sediments in the area where the stream slope abruptly changes from steeper mountain terrain to relatively flat valley terrain. This results, over time, in a fan-shaped alluvial deposit that may have several stream channels that may be activated under different flow conditions. YouTube video: <https://www.youtube.com/watch?v=ELwEjenuHps>

### What is alluvial fan flooding?

Alluvial fan flooding is common to communities in the mountains of the western United States. Alluvial fan flooding can occur when stream flows are large enough to exceed the channel capacity of the stream, causing the stream to flow out of its bank and into previously active alluvial fan channels. Many flood mitigation techniques applied to other flood-prone areas have limited or no effectiveness on alluvial fans. Many alluvial fan communities now recognize these unique hazards, or have experienced repetitive flooding problems, and are seeking to implement flood management and mitigation plans. However, existing structures may need to rely upon flood proofing measures to reduce flood damage.

